

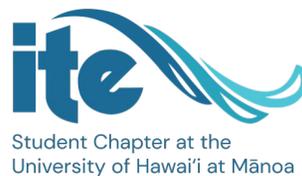
Final Report Summary

ITE Western District 2022 Student Projects

Prepared for:



Prepared by:



October 2022

Purpose of Report

As requested by the Request for Proposal (RFP) of the ITE Western District STEM Outreach Student Projects, the ITE Student Chapter at the University of Hawaii (henceforth, referred to as “student chapter”) has written a final report summary of their STEM Outreach project. The report will cover a description of the proposed project and the project efforts done by the student chapter. The following is a summary of their project.

Proposed Project

Vision Zero is an initiative of ITE to eliminate all traffic fatalities and severe injuries, while increasing safe, health, and equitable mobility for all. With our lesson, we hope to share with students the importance of constructing our built environment for people, how it is necessary to make not only a complete network to connect people but one that is safe for all users.

The proposed project by the ITE Student Chapter at the University of Hawaii entails the creation of a lesson plan on pedestrian safety entitled *Making Connections*. In our lesson, students will experience transportation engineering learning about creating a well-connected transportation network and creating a safe crossing for people walking. In groups, students will be tasked in creating a safe and well-connected neighborhood. The project will have students be creative, but also critically think about designing for pedestrian safety. The proposed audience for this project is intended for high school students, to be done in groups of four to six students, and be able to be completed during a single class period. A detailed lesson plan, visual aid, and handouts were created by the student chapter to be used by individuals and organizations to run the STEM lesson.

Upon completion of the activity, students should be able to:

- Express the importance of a safe and complete transportation network.
- Recognize design and network issues and the potential negative effects those issues cause.
- Describe ideas and solutions to mitigate existing design and network issues.

Project Efforts

General

As mentioned in the RFP, student chapter projects should be scaled to take approximately 80 person-hours of effort. For this project, the student chapter estimated completed person-hours consisted of 80 person-hours. These hours include the following:

- Project management for the project, 10 hours
- Creating the draft lesson plan, 20 hours
- Testing the lesson plan, 20 hours
- Creating the final lesson plan, 20 hours
- Creating the final summary, 10 hours

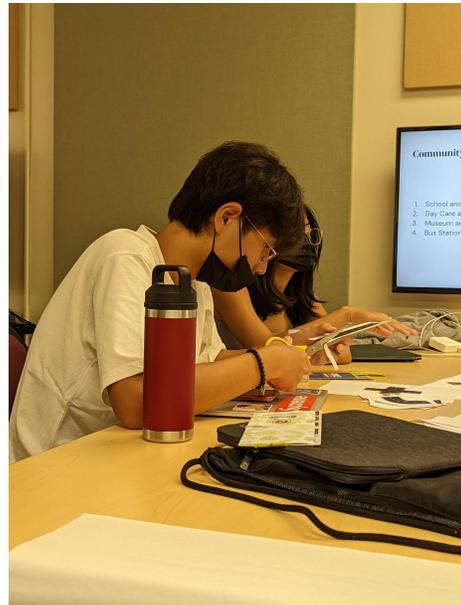
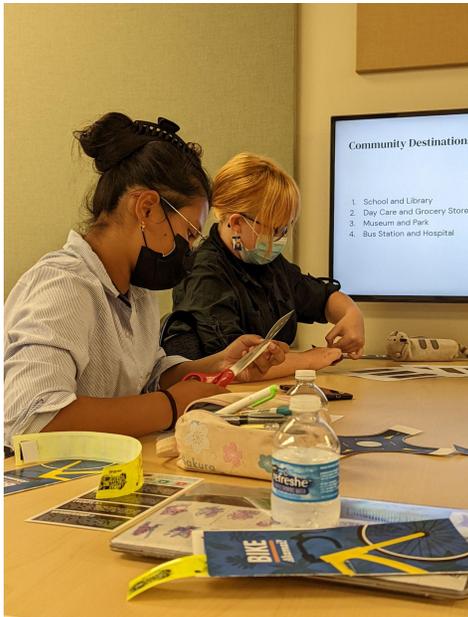
A summary of actions taken during the project process is as follows:

Setbacks

Upon being selected by the ITE Western District for funding in the 2022 project cycle, the ITE Student Chapter at the University of Hawaii was faced with reduced manpower as graduating student officers were no longer able to commit time towards the STEM Outreach project. In addition, the lack of members in the student chapter left the remaining officer to complete the outreach project by themselves. This led to the project taking longer to be completed than originally anticipated. Steps taken to overcome this setback included working closely with the ITE Hawaii Section Liaison and ITE Student Chapter Advisor to create a plan to move the project along. The lone student worked to gather the materials needed for the lesson and coordinated with the faculty advisor to test the lesson plan with high school students.

Testing

In June 2022, the lesson plan was tested with high school students across the Hawaiian Islands and Northern Mariana Islands as part of PAC-STEP Summer Program hosted by the College of Engineering at the University of Hawaii. Students engaged in discussions about pedestrian, bicycling, and vehicular infrastructure in different types of communities. Students also learned about the history and mission of Vision Zero as well as efforts and solutions to achieve Vision Zero goals. Through the activity, students went through the process of designing a community: proposing a design, receiving approval, and physically building the community.



Students working together on their community



A student group presenting the community they created

Feedback from the participating students was overwhelmingly positive. Students participating in the summer program voted that the ITE lesson was their favorite activity as part of the program. They noted that they enjoyed the discussions they had during the lesson and the ability to build their own community. Many students also responded that they would like to do more in their community to make it safer for pedestrians and bicyclists.



Student groups with their communities



Students' communities all together

Revisions

While the feedback was positive, the original lesson plan took longer than expected, around two to three hours. In order to be able to complete the lesson plan during a class period, around one hour, portions of the original lesson plan were removed and other parts revised to reduce time. These revisions included:

- Shortening the introduction
- Specifying a smaller size for the “community base”
- Removing the need for approval
- Conducting a discussion at the end instead of the beginning

Conclusion

The proposed project entails the creation of a lesson plan on pedestrian safety, in which students will experience transportation engineering learning about creating a well-connected transportation network and creating a safe crossing for people walking. The proposed project tested positively with high school students, many of which found the activity enjoyable and in turn would like to take action in their own community to make it more accessible. While setbacks were faced during the project, the project was able to be completed due to the hardworking nature of the ITE Student Chapter and the support from the ITE Hawaii Section. The success of this project would not have been possible if it was not for the support of many individuals. It is recommended student organizations to continue to grow their organizations and support network through the use of the lesson plan. While the proposed project is made to be done by both individuals and/or organizations it is encouraged that the lesson plan be done by a group of people as running the lesson alone may be difficult especially in environments with a large number of students. The ITE Student Chapter at the University of Hawaii believes that this project is not only a tool to introduce and expose students to transportation planning/engineering but as a way to have students think critically about the world around them and the impact they can have on the real world.

Making Connections

Description

Have students understand the importance of having a safe and well-connected neighborhood by having them design a neighborhood community for themselves and provide discussions on improving access to destinations for all people.

Format

Time: 1-1.5 Hours

Audience: High School, 4-6 people in a group

Supplies

- Markers, pencils, colored pencils (including white)
- Construction paper
- Materials that students will build their neighborhood upon, a “neighborhood base” (choose one):
 - Paper grocery bags
 - Shoe boxes (reach out to a local shoe retailer for extras)
- Glue bottles/sticks
- Scissors
- Tape
- Bag/basket/box
- Optional: Simple stickers (stars, dots, etc.), Pipe cleaner craft material

Supplemental Materials Provided

- Handout: Neighborhood checklist (2 per sheet)
- Handout: cut-outs for road segments, 4-way intersection, T-intersection, crosswalks, and roundabout.
- Visual aid: PowerPoint file with 5-10 images of pedestrian crossing treatments.
- Visual aid: PowerPoint file with 4 sample street network layouts.

To Do in Advance

- Visit the space where the activity will be taking place and ensure that necessary furniture will be in place. Decide if you will/can use computer projection.
 - Compile and print images (clip art/stock photo) of important “community destinations” relevant to the students. Examples: school, daycare, grocery store, library, regional park, neighborhood park, museum, and bus station.
 - Print handouts
 - Divide materials up into the correct amount for each student group and organize each group’s materials into a separate box or bag.
 - Deconstruct/cut the paper grocery bags or shoe boxes to make similarly sized cross-shaped bases
 - If not using computer projection:
 - Print PowerPoint slides with images of crosswalks at different types of crossings.
 - Print a few copies of the PowerPoint slides with street networks as a reference for student groups.
 - Before event starts:
 - Make sure space is clear and set up for activity.
 - Set up each table with supplies for each group (specific materials for the activity including “neighborhood base,” markers, construction paper, etc.).
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Greetings and Icebreaker (5 minutes)

Activity Part 1 (20–30 minutes): Each group will be given a bag/box that contains the following:

- Neighborhood checklist
- Road-segment cut-outs
- Neighborhood base

Each group selects an essential community destination(s) from the bag/basket/box and chooses an intersection to work with. Assign groups with the task to build a

neighborhood that must meet the requirements of the neighborhood checklist. Students should start by placing down their intersection and/or street(s).

Remind students that they need to include their essential community destination but should add other elements like houses, shops, green spaces with trees, street signs, sidewalks, bus stops, and entertaining places such as a skate park or a swimming pool. Encourage them to pick a name for their neighborhood and street names.

Activity Part 2 (10–15 minutes): Call the student groups together and ask them each to spend a minute explaining how they designed their street and what is around it, including a name for their neighborhood.

Activity Part 3 (15–20 minutes): Debrief and conduct a discussion. Consider using the visual aids to talk about street networks and pedestrian safety treatments. Highlight the importance of having a safe and well-connected neighborhood. If time permits, allow students to improve connections in their neighborhood.

Concepts for activity leader to reinforce during activity:

- It is easier to get around a community when streets, sidewalks, and trails are connected to each other and make a complete network.
- The road network doesn't have to be the same as the walking network (trails!), but people walking and bicycling need to have a safe, convenient place to travel along and cross streets.
- The quality, type, and number of connections and crossings greatly affect how well we can move through the community by car, bike, bus, train, or on foot. Missing or poor connections can make it difficult for people to reach places they need to go, or want to go, throughout the community. Missing connections can also create safety problems.

Neighborhood Checklist

Does my neighborhood have:

- Sidewalks
- Crosswalks

- Do I have a community destination?

- Can I walk from my part of the neighborhood to everywhere else?

- Are there different routes to walk to places?

- Are there places for people using wheelchairs to cross the street?

What is missing from this community? Write below.

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